

MIXED CROPPING MODELS FOR COCONUT LANDS

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Mixed cropping is the cultivation of several intercrops together in the same coconut land. Mixed cropping models are combinations of crops of different heights and having different types of root systems growing under coconut. These systems are very often seen in coconut small holdings in the wet zone where crops such as banana, coffee, pepper, cacao, arecanut and other fruit crops are grown together. These are very popular in the districts of Kegalle and Gampaha. However, mixed cropping should be done systematically in order to minimize adverse effects of one crop on another.

Advantages of mixed cropping under coconut

1. Risks arising from fluctuating market prices of one intercrop will be minimised by the presence of another intercrop.
2. Maximum income could be gained from small holder coconut lands.
3. Small holdings of coconut could be developed as home gardens and the growers primary food crops could be obtained.
4. Increase land value.
5. Improves the management of coconut lands by weed control, reduced soil erosion etc.
6. Systematically planted mixed cropping models have no adverse effects on coconut.
7. Better use of natural resources.

Areas suitable for mixed cropping models

Coconut lands in the wet zone in the districts of Colombo, Gampaha, Kegalle, Kalutara, Galle, Matara and Kurunegala (Polgahawela and Mawathagama areas) are suitable for mixed cropping models under coconut.

Selection of coconut land

- (a) **Soil:** Shallow soils with a hard pan at about 1m (3-4 ft) depth are unsuitable for plant growth and should not be selected. Both sandy soils with its low water retention capacity and clayey soil

with its hard nature and poor drainage are not suitable for perennial mixed cropping models. Deep loamy soils with organic matter are ideal for this type of intensive farming. However, shallow soils can be selected for drought tolerant crops such as pineapple, passion fruit etc. along with suitable soil and moisture conservation practices for coconut.

- b) **Age of the coconut plantation :** The coconut plantation should be from about 15 to 45 years for perennial intercrops such as coffee, cacao, pepper and cloves. Semi-perennials such as banana, pineapple, passion fruit can be grown when coconut is 0-5 years or more than 30 years old.
- c) **Irrigation facilities:** Certain intercrops require supplementary irrigation during dry periods for establishment. Therefore, mixed cropping models should be established close to water resources in coconut lands.

Establishment and maintenance of mixed cropping models

Essential cultural practices in coconut such as manuring, filling vacancies, soil and moisture conservation practices etc. should be completed before the establishment of mixed cropping models. In selecting intercrops, marketing facilities should be considered carefully. The selected intercrops should not adversely affect coconut yields. If intercrops such as banana, coffee, pepper or any other fruit crops are already established in the land, the mixed cropping model should be designed to include them as well. Unwanted trees should be removed. The coconut Development Officer of the area will assist in the selection of crops and organizing a suitable model for the land.

The selected intercrops should be grown with care. It is necessary to follow manuring and other cultural practices separately for various intercrops in the model. Further details on intercropping coffee, cacao, pepper are available in this and in the earlier issue.

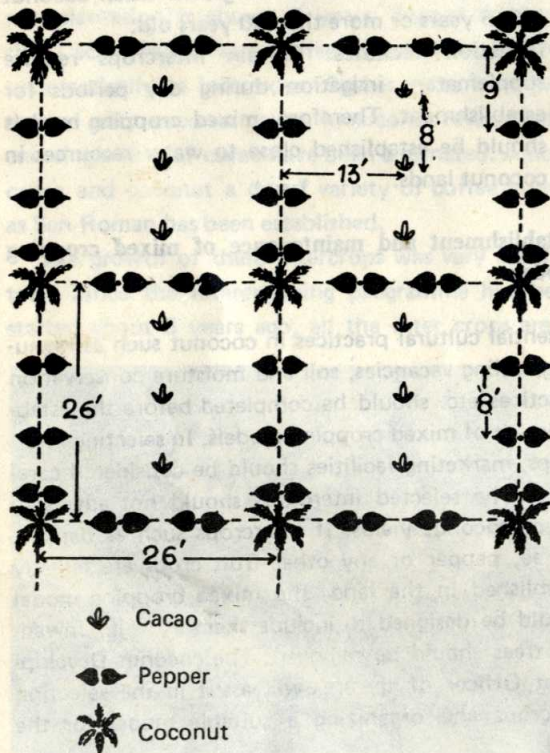
Further advice on planting and maintenance of these crops could be obtained from the Department of Agriculture, Coconut Cultivation Board and the Coconut Research Institute.

Harvesting of coconut should be considered when establishing mixed cropping models. The following recommended models of mixed cropping require handpicking of individual coconut palms by climbers. This is not considered too difficult as mixed cropping models are mostly recommended for small holdings.

Some suggested mixed cropping models

The following five models could be recommended as shown in the diagrams.

Model - 1



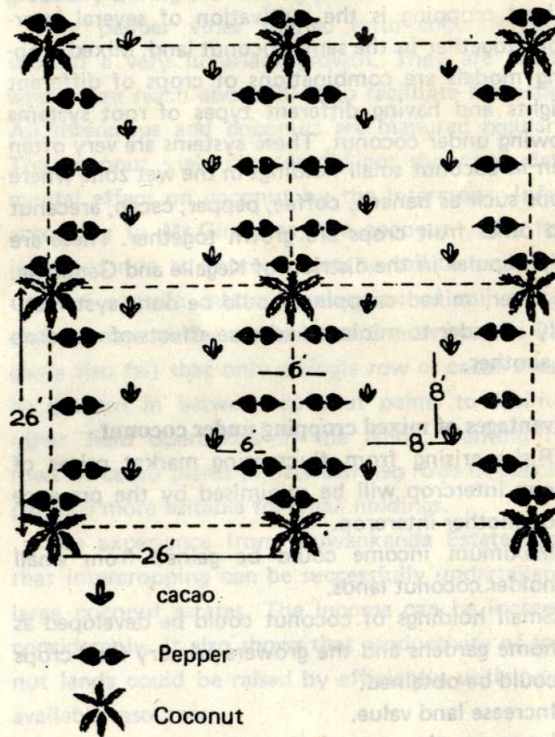
Model - 1

In each coconut square,

- a) there are 3 cacao plants as a single row between two rows of coconut (480 cacao trees/ha).
- and

- b) pepper is trained onto coconut palms and also onto gliricidia stakes placed along the coconut rows at the rate of two plants between two coconut plants (800 pepper vines/ha).

Model - 2



Model 2

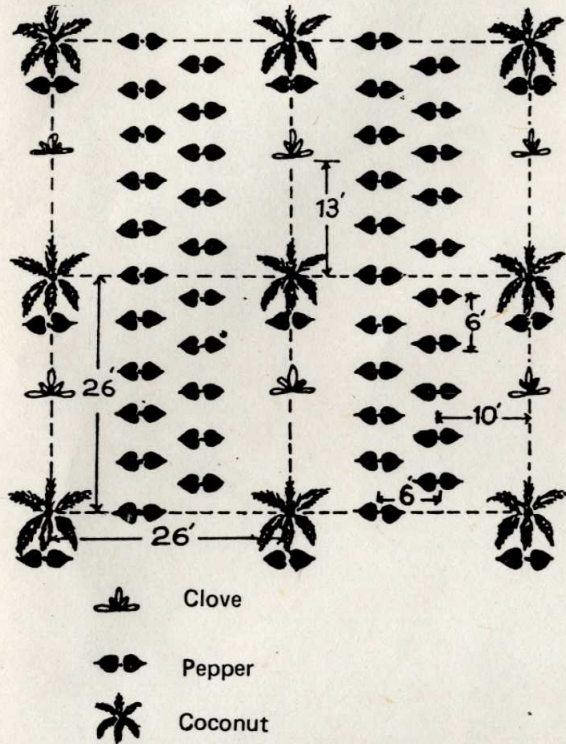
In each coconut square

- a) there are 6 cacao trees (double rows of cacao between two rows of coconut planted in the triangular system) (960 cacao trees/ha).
- and
- and
- b) there are 6 pepper vines trained onto gliricidia (two rows of pepper are established between double rows of cacao) and a single pepper vine trained onto coconut palm (1120 pepper vines/ha).

Model - 3

Model 3 consists of coffee and pepper with coconut. This is similar to model - 2 except that cacao is replaced with coffee.

Model - 4



palm. A clove plant is planted at the centre of the coconut row. These clove plants could be established on 2- 3 year old husk pits. (1440 pepper vines/ha; 160 cloves plants/ha).

Model - 5

Model - 5 consists of coffee and cloves with coconut. This is similar to Model - 4 except that pepper on gliricidia is replaced with coffee. (1280 coffee plants/ha; 160 clove plants/ha; 160 pepper vines/ha).

Model - 4

There are two rows of pepper between two rows of coconut. Pepper vines are trained onto each coconut